

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

UNITED STATES OF AMERICA)
)
) No. 12 CR 354
vs.)
)
) Hon. Ronald A. Guzman
DAVID LEWISBEY)
)

MOTION IN LIMINE TO EXCLUDE EXOERT TESTIMONY

COMES NOW the defendant, DAVID LEWISBEY (“Mr. Lewisbey”), by and through his attorneys, Beau B. Brindley and Michael J. Thompson, and moves the Court, *in limine*, to exclude from evidence the proposed expert testimony of Special Agent Joseph Raschke regarding cellular tower data analysis. In support, he states the following:

Background

Mr. Lewisbey was charged by way of a third superseding indictment with three counts of unlawful import of a firearm and two counts of unlawful interstate travel to engage in business involving a firearm. Mr. Lewisbey is set to begin trial before this court on September 9, 2013. The government has disclosed its intention to call Special Agent Joseph Raschke to testify regarding historical cell site analysis he performed. A preliminary report summarizing his methods and conclusions is attached as Exhibit A to this motion.

I. Opinion Testimony Regarding Historical Cell Analysis Does Not Satisfy *Daubert* requirements

The Court should exclude the testimony of Agent Raschke regarding historical cell site analysis under Rule 702, *Daubert*, and Fed. R. Crim. P. 16. Special Agent Rashcke describes his analysis and its purpose as follows: “An analysis of the call detail records with cell site information for phones (312) 671-2358, with service provided by AT&T, and (773) 299-4690,

with service provided by Sprint, was requested by ATF Special Agent Ramiro Montes. Multiple time periods of interest were provided by SA Montes, including April 21-23, 2012. SA Montes also requested that the records be analyzed to determine if the AT&T phone utilized towers near the following events on the listed dates: [listing dates and locations of eight gun shows in Indiana] ” Exhibit A at 2. The analysis conducted cannot and does not establish the articulated purpose because it is based on flawed methodology and insufficient facts and data. Additionally, to the extent the testimony would be admissible, the proffered expert notice is insufficient, as it does not fully explain the methodology used and the facts and data relied upon. Because historical cell analysis cannot reliably determine a phone’s location, the testimony should be excluded.

A. Background on Cell Phone Coverage

Some basic background on historical cell analysis is useful here. On a very basic level, cell phones are radios. *See Exhibit A at 3.* Cell phone providers provide coverage by establishing a comprehensive network of radio antennas that send signals to cell phones. These antennas are usually on a cell tower or some other elevated structure. These locations are referred to as cell sites. Each cell site has a coverage area. However, the coverage areas are not mutually exclusive. In order to provide comprehensive coverage, service providers construct cell sites whose coverage areas overlap. When a person makes a call on a cell phone, the phone connects through a particular cell site. Generally, cell phones will connect through the cell site providing the strongest signal. However, the cell site providing the strongest signal is not always the closest cell site.

The coverage area of a particular cell site can vary tremendously. “One cell may cover an area up to thirty miles from the site, for a total coverage area of approximately 2,700

square miles. Other cells may cover much smaller areas ranging from one to three miles from the site.”¹

There are many factors that affect a particular cell site’s coverage area and signal strength. The physical characteristics of cell sites affect signal strength (i.e., number of sites available, height of the cell site, wattage output, maintenance or repairs). Additionally, the angle and direction of the antennas and the amount of call traffic processed through each antenna can affect signal strength. The type of phone used and where it is used (e.g., indoors or outdoors) affects signal strength. The geography of the area, including the presence of buildings and the level of urban development as well as weather conditions affect signal strength and coverage area. *Finally*, any scheduled maintenance or excessive traffic can alter which tower a phone connects to. *Id.*

B. Historical Cell Analysis

Historical cell analysis, which the government purports to use here, should be distinguished from cell phone triangulation. Cell phone triangulation is the real-time tracking of cell phone location. This is a more reliable form of tracking than historical cell analysis. Real- time tracking utilizes the fact that cell phones are constantly scanning the area for signals from cell sites. By tracking the cell sites from which the phone is receiving a signal, it is possible to determine the location of the phone. That kind of tracking is not possible with historical cell analysis.

Historical cell site analysis looks at phone records, which show what cell sites a particular cell phone connected to at the beginning and end of a call, in order to approximate

¹ Aaron Blank, *The Limitations and Admissibility of Using Historical Cellular Site Data to Track the Location of a Cellular Phone*, XVIII Rich. J.L. & Tech. 3, <http://jolt.richmond.edu/v12i1/article3.pdf>

location. Based on the particular cell sites a phone was connected to, experts attempt to determine geographic location. The basic idea is that in order to utilize a particular cell site, the phone must have been in the geographical area served by that particular site.

The analysis seems simple enough, but its integrity is entirely dependent on the proper determination of the service area of particular cell sites. Determining the service area is a much more daunting task. As noted above, cell site coverage can be affected by maintenance or repairs being performed, the height of the cell tower, wattage output, weather, and a host of other factors.

If a handset is directly in front of, and with line of site to, the antenna for a given cell and with no other cells of greater or equivalent power close by, it would be unlikely to select any other cell. This means that within the service area of a given cell, there will be regions where a phone could not be reasonably expected to initiate (or respond to) a call on any other cell. The location in question could be termed as being within the ‘dominant’ region of the cell. The ‘dominant’ areas of a cell in an urban environment will usually be very small in comparison with the total area over which the cell is able to provide service.

Elsewhere, the received signal strength of other cells will be closer to or supersede that of the cell in question. The effects of clutter (either by line of sight or the effects of localised interference, or ‘fast fading’) will mean that there may be marked differences of signal strength over very small distances. If there are other cells serving the area with similar signal strengths, the cell selected as serving by the handset may change frequently. This (usually much larger) region is termed a ‘non-dominant’ area.

A new cell will generally be selected if the received signal strength of that which it is camped on is less than that of another measured handover candidate for a specific period of time, so the cell selected at any point in time will be affected by the previously selected cell. Two phones at the same location could therefore camp on different cells, even if they have similar received signal strengths of the cells serving at that location.

Matthew Tart, *Historic cell site analysis – Overview of principles and survey methodologies*, Digital Investigation 8 185-186 (2012).

C. Agents Proposed Expert Testimony

Agent Raschke's report indicates that "the best signal generally comes from the tower that is CLOSEST to the phone, or in its direct LINE OF SIGHT." Exhibit A at 3 (emphasis in original). He goes on to state that "The tower with the best signal is the one the handset will use for service, this is the serving cell and will be used to make and receive calls." Exhibit A at 3. Agent Raschke claims that as a phone moves, it will connect to other towers based upon the strength of signal, but provides no data for how this is measured or for the relative signal strength of various towers. Exhibit A at 3.

There is no explanation of how any of these conclusions were reached. Agent Raschke has not disclosed what materials he relied upon to come to these conclusions or what if any tests or analyses have been performed. This type of testing is clearly available. See *United States v. Allums*, 08 CR 30 Dkt # 155 (D. Utah March 24, 2009) (Government expert purchased a phone similar to the defendant's phone and put it in "engineering mode" and drove around the relevant neighborhoods to determine which cell site was providing signal).

Estimating the coverage area of radio frequency waves requires more than just training and experience, however, it requires scientific calculations that take into account factors that can affect coverage. Special Agent Raschke presented no scientific calculations and did not consider a variety of relevant factors. Although the call data records upon which he relied are undisputed, the link between those records and his conclusions is deficient.

United States v. Evans, 10 CR 747, Dkt 126 at 11 (N.D. Ill August 29, 2012) (Lefkow, J.)

The government intends to use this historic cell tower information in an attempt to demonstrate that Mr. Lewisbey specifically traveled back and forth between Chicago and various Indiana gun shows on various dates. They offer no explanation of the reliability or error rate of the underlying data and methods use to reach that conclusion. Testimony such as SA Raschke's is not sufficient to pass the standards of *Daubert v. Merrell Dow Pharmaceuticals*,

Inc., 509 U.S. 579, (1993), which held that the reliability and admissibility of proposed expert testimony is governed by an examination of four factors: (1) whether the theory is based on scientific or other specialized knowledge that has been or can be tested; (2) whether the theory has been subjected to peer review; (3) the known or potential rate of error and the existence of standards controlling the theory's operation; and (4) the extent to which the theory is generally accepted in the relevant community. *Daubert*, 509 U.S. at 593–94; *see also Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 151 (1999).

In this case, SA Rashke's methods do not appear to have been tested, even if they may be based on specialized knowledge. There is no evidence of peer review, an analysis or disclosure of an error rate, or any standards governing the operation of Raschke's theories. Any conclusions Rashke would draw from the data would necessarily be an expert opinion, and the government has not established a sufficient predicate that Raschke is qualified to provide a reliable opinion drawn from the analyzed data, or indeed that anybody could provide such an opinion sufficiently reliable under *Daubert*. The analysis necessary to determine the error rate of any claim about these cell phone towers requires scientific analysis to establish the coverage area for each relevant tower. That information is missing in this case.

In the absence of reliable methods and sufficient facts and data about each relevant cell site, this information should not be presented to the jury. This case is not unique. The information needed to make reliable determinations based on historical cell site analysis is absent in most cases. “Given the limitations of cell phone tower evidence, as demonstrated in the cases above, there is little reason for a [] judge to ever allow such evidence in front of a jury.” Imwinkleried, et al., *Judicature*, v.95, no.4, 2012 Jan-Feb, p.151-153. Under the facts of this case, Rule 702’s requirements of reliability and of sufficient facts and data are simply not

met. Mr. Lewisbey requests that this Court either exclude the testimony or hold a *Daubert* hearing regarding the propriety of the proposed testimony.

Further, because the expert disclosure did not provide any information on what materials Agent Raschke relied on to come to his opinions. It did not indicate what analysis was done to generate the opinion that, in this case, the phone in question would have connected to the particular towers identified in the report. And it provided no indication of how it was that Raschke assessed the coverage area of the specific towers referenced in the report. Therefore, the expert disclosure is insufficient under Rule 16 and Agent Raschke's opinion should be excluded for that reason as well.

WHEREFORE, Mr. Lewisbey respectfully requests that this honorable Court grant his motion *in limine* and exclude the evidence identified above.

Respectfully submitted

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